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AUTHOR	Odin, Jaishree K.
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ABSTRACT

To establish standards of quality in online courses developed through the University of Hawaii's Asynchronous Learning project funded by the Alfred P. Sloan Foundation, a preliminary study of courses from various disciplines was conducted. The aim of the study was to identify teaching activities that contributed to the creation of a high quality interactive classroom where students were actively engaged in the process of learning. The study showed that a direct relationship exists between the teaching activities and the frequency and quality of collaborative learning in the online classroom. Carefully crafted teaching activities contribute toward creating the social presence of the teacher, which directly or indirectly shapes the learning environment and thus significantly impacts the desired learning outcomes. (Contains 12 references and 1 figure.) (Author)

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Teaching and Learning Activities in the Online Classroom: A Constructivist Perspective

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Jaishree K. Odin
Liberal Studies Program
University of Hawaii at Manoa
United States
odin@hawaii.edu

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Abstract: To establish standards of quality in online courses developed through the *University of Hawaii's Asynchronous Learning* project funded by the Alfred P. Sloan Foundation, a preliminary study of courses from various disciplines was conducted. The aim of the study was to identify teaching activities that contributed to the creation of a high quality interactive classroom where students were actively engaged in the process of learning. The study showed that a direct relationship exists between the teaching activities and the frequency and quality of collaborative learning in the online classroom. Carefully crafted teaching activities contribute toward creating the social presence of the teacher, which directly or indirectly shapes the learning environment and thus significantly impacts the desired learning outcomes.

Introduction

A number of recent studies on the online teaching-learning process have specifically dealt with the role of the online teacher as a facilitator (Salmon, 00, Palloff et al, 01; Collison et al, 00). Such studies through their exclusive focus on the role of the teacher as a facilitator often lead to the misperception that online teaching is merely facilitation. The role of the online instructor is also to create a "teaching presence" through appropriate instructional activities which include lecture notes, teaching commentaries and individual or collective discussion responses to guide students toward critical exploration of the content (Anderson et al, 01).

Studies have shown that the constructivist model in instructional design based on active learning is capable of providing an effective theoretical frame work within which to analyze the teaching-learning experience in technology mediated instruction (Bednar et al, 92; Gold, 01). Knowledge construction has been described as a social process (Dewey, 96). Learning involves construction of internal representations of knowledge which can best be accomplished in a collaborative situation where learners encounter other knowledge representations or perspectives, which allow them to review, evaluate and assess their own perspective, and revise it if the revision is more meaningful (Bednar et al, 92). In an effective learning environment, the instructional tasks are contextualized in authentic situations and students are given opportunities to construct knowledge as they test their ideas on others and evaluate other perspectives. The social negotiation of meaning is enhanced when the role of the teacher is seen as a coach and a facilitator in the learning process (Vygotsky, 78).

Current research on online learning shows that new technologies allow course participants to engage in meaningful discussions so knowledge is not transmitted from the teacher to the students, but rather discovered as individual perspectives are shared in a collaborative learning environment (Hiltz 97; Harasim, 90; Joy et al, 00). Students acquire knowledge in a social context where they are given opportunities to articulate and express their views as they construct knowledge that is personally meaningful to them. The teaching-learning process is thus seen as a shared transaction in which the learners assume responsibility for their learning and the teacher shares with students the control of the nature and content of the activities in the classroom as s/he ensures that any new knowledge created meets the shared disciplinary standards (Garrison et al, 00). As the content expert, the teacher thus guides the learners as they negotiate the exploratory learning environment. The direct and indirect teaching acts performed by the

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teacher in the online classroom are thus critical in shaping the collaborative learning process in the classroom to achieve the desired learning outcomes.

Research Method

In order to determine the relationship between the diverse teaching and learning activities in completely online courses offered at the University of Hawaii at Manoa, a detailed study was conducted of six courses from a variety of disciplines: information and computer sciences, music, family resource management, anthropology, political science, and interdisciplinary technology and culture. The six online courses were taught in Fall 2001. The primary aim of the study was to find the set of teaching-learning practices that were conducive to creating an active collaborative learning environment. In order to collect data on the courses, the study employed a detailed worksheet listing various teaching and learning activities possible in the online classroom. Teaching activities which were examined in each course included course overview documents, lecture notes/content overviews, interpretive teaching commentaries, discussion/ study questions, and teacher's facilitative discourse. Learning activities that were examined included weekly responses to the reading assignments or individual work assignments, online discussion, group projects, and students' leadership discourse. After collecting data on the teaching and learning activities included in each course, the relationship between the two types of activities was examined. The impact of the teaching acts on the learning acts was studied through analyzing the quality of the work produced by the students in terms of online class discussion, group discussion (if included), as well as individual work assignments submitted as weekly responses to the readings. This study did not include the work students submitted directly to the instructor in the form of short or long research papers or quizzes.

Data Gathering and Analysis

Teaching Activities

The courses included in the study were taught using a course management system, either WebCT or Blackboard which provided an almost complete transcript of course documents, course activities as well as strategies the instructor used to manage the course on a weekly basis. The course overview documents along with the weekly introduction of materials by the instructor provided a good perspective on how the course was designed. Courses studied were labeled A, B, C, D, E, and F in order to maintain the anonymity of the instructors who taught the courses.

All instructors had gone through a tutorial on online teaching, which went over the effective strategies to organize and manage an online course. With the result all courses included good course overview documents, which provided a detailed description of the syllabus, schedule, course procedures, requirements, and grading system. The courses A, B, and C included either an introductory student tutorial on online learning or detailed technology tips for students to access the course.

In courses A, B, and C the instructors rethought the traditional lecture presentation. The weekly reading assignments were introduced in a non-linear manner through lecture notes, content overviews, and web-based resources. The purpose of lecture notes or content overviews was to facilitate students' access to weekly readings and work assignments.

Whereas lecture notes served the purpose of introducing the course materials, the interpretive teaching commentaries used in the courses A, B, C, D, E, and F served to provide a platform through which the instructor as content expert responded to discussion posts and/or individual responses to the readings in the form of weekly collective postings. Different instructors used teaching commentaries for different purposes. In all cases, the teaching commentaries became for the instructor one of the ways to assert his or her presence in the electronic classroom. The commentaries served to contribute to the dynamic nature of the learning environment as these were not pre-scripted, but tailored to the particular learners and the learning environment. The instructors who provided interpretive teaching commentaries thus made their presence felt in ways other than discussion facilitators.

In order to make the course materials more meaningful to students, the instructors who taught the courses A, B, and C made use of study questions or discussion questions to guide students to think of the ideas or the subject matter covered in a broader context. They also encouraged students to apply the ideas under discussion to real life situations. The discussion questions in courses A, B and C became the basis for

the instructor-led component of class discussion that also had a broader student-led discussion component. No discussion/study questions were included in the weekly activities of the courses E and F.

The success different instructors had with the efficient management of the classroom was studied through the examination of the facilitative discourse which was present in all courses to a greater or a lesser extent. The facilitative discourse included any direct or indirect teacher intervention to efficiently manage the course and make it run smoothly through enforcing deadlines and providing guidance when needed. It included the comments to generate enthusiasm or to promote self-motivation and self-direction among students. The examination of the facilitative discourse was restricted to what was revealed in the course transcripts and not to any individualized feedback that the instructors might have provided students through private e-mail.

Learning Activities

All courses included both individual as well as collaborative learning activities, which were designed differently in various courses. Students were required to submit weekly individual responses to readings in the courses A, B, D, and E, whereas in the course F, they were asked to submit a biweekly response to the readings. The courses C and F made use of weekly quizzes to assess if students had learned the material.

The instructors used various methods to collect the responses submitted by the students. In the course F, students were divided into groups and the responses were discussed in the group working area. In the course D, students were asked to post their responses on the class discussion board. In this course, the responses had to include discussion questions framed by students. In the course B, students were required to send the weekly responses privately to the instructor. After students had submitted their responses for a particular week, the instructor of this course made the responses public so they were available for everyone to read.

Online class discussion was used in all courses, but its effectiveness as a collaborative learning tool varied from course to course. In the courses A, B, C and D, the discussion served the purpose of helping students validate each other's learning. Different perspectives helped them understand ideas that they had missed or not understood in their own reading. Students in these courses responded thoughtfully to each other's comments. Such exchanges created a shared context for learning. In the courses E and F, the discussions were very superficial.

As far as the incorporation of group projects was concerned, only courses A and B incorporated group projects. The group project served as the focal point around which the group members in these two courses did research, gathered information, and jointly created a product.

Giving students a leadership role in course activities was used by most of the instructors as an effective way to get actively involved in course activities. Though all courses had this feature implicitly embedded in the course activities, only the course B had explicitly organized the groups in such a way that both the groups and the individual group members were given opportunities to engage in leadership discourse as they initiated weekly discussions and managed weekly group activities on a rotating basis.

Results

The detailed analysis of the course transcripts showed that selecting a course management system and creating the course overview documents is only half of the project of creating an effective online course; the other half is the content and organization of weekly multi-modal teaching and learning activities. The study indicated that the teacher's implicit or explicit teaching philosophy directly impacted the nature and the number of teaching acts performed on a weekly basis in the online classroom. Different instructors integrated various teaching and learning activities into the course environment to different degrees. It was obvious that the presence or absence of teaching activities shaped the learning environment in each course. There was a direct relationship between the nature of direct and indirect teaching activities and the frequency and effectiveness of collaborative learning activ ities.

Given below is a chart that shows the relationship between the teaching and learning activities and the resulting active or passive collaborative learning environment. Courses labeled A, B, and C showed

maximum multi-modal teaching and collaborative learning activities involving discovery or active learning. Courses labeled E and F showed minimum teaching activities with very little active collaborative learning. The collaborative learning activities in these courses were merely a cosmetic addition to the class activities. The course D fit somewhere between the two as far as the effectiveness of collaborative learning activities was concerned.

Courses A, B, & C: Multiple Multi-Modal Teaching Activities

The three courses labeled A, B, and C with multi-modal teaching activities produced a learning environment where students were engaged in the construction of knowledge as they worked collaboratively. The more the teaching acts, the greater the frequency and higher the quality of collaborative learning acts performed by students.

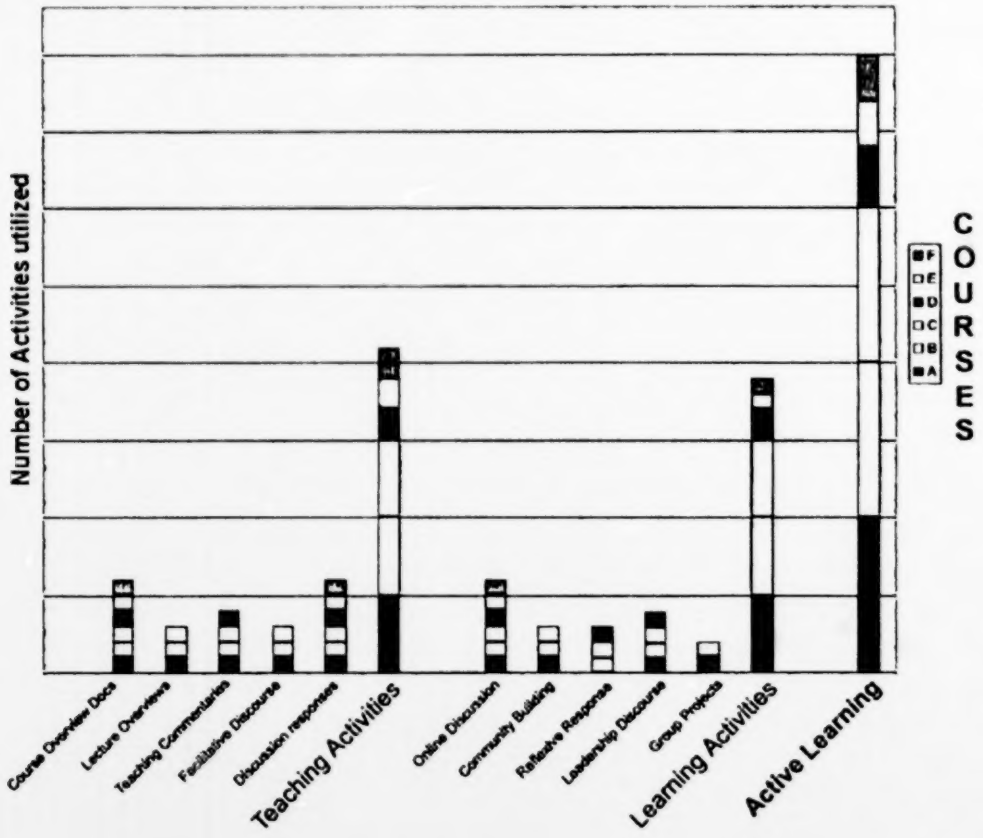

Figure 1: Relationship between Teaching and Learning Activities

Course D: (Constructivist Model) Reduced Teaching Activities

The course D occupied a position somewhere between the highest and the lowest in terms of the quality of online discussion. Students were required to write a weekly response to the readings and formulate two to three discussion questions related to the readings. Both the response and the questions were posted on the discussion board. Students then responded to each other's discussion questions as well as responses. The quality of discussion in this course was good. The instructor provided feedback primarily

through a collective weekly discussion posting, though occasional responses to individual postings were also made. Students in this course, however, were on their own as they tackled the assigned readings on a weekly basis unlike in the other three courses A, B, and C where the instructors had provided lecture notes or content overviews on a weekly basis. Since students were more or less on their own in the course D as far as accessing the content was concerned, it is unclear if they could engage the texts as intensively as they would have done if the instructor had provided more guidance.

Courses E and F with Minimum Teaching Activities

In courses E and F with decreased teaching acts, it was obvious that the instructors implicitly based their courses on the traditional instructional model. Even though the instructors used the suggested online course design for incorporating collaborative work, it was against the background of the assigned course activities where students were primarily asked to basically read the materials, complete the assignments and send the completed assignments to the instructor. In these two courses, no specific instructions were given to students as to how they should conduct their discussion activities. In the first course, students were simply asked to discuss the readings with other group members. In the second course, each student had to complete a biweekly assignment. This assignment was in the form of a commentary on the readings, a summarization of the main points along with some comments on what transpired in the discussion amongst the group members. Group members were encouraged to discuss the work in the chat room, rather than through asynchronous discussion. Both the chat room archives and the asynchronous discussion, when examined, reflected very superficial interaction.

In the above two courses with decreased teaching presence, the teaching activity was thus confined to the minimum and appeared only in the form of the instructor's collective response to discussion postings. Students found themselves in a very open learning environment, as they had to rely on their own resources to comprehend the materials for which they were unequally prepared. The discussion transcripts of the two courses showed if the instructor is not clear about the purpose of the group work and how it can be used to encourage students in constructing knowledge or transferring new knowledge to other contexts, online discussion is bound to focus on the reproduction of ideas. In the absence of any explicit guidance from the instructor through discussion questions or well-integrated interpretive teaching commentaries or lecture notes or content overviews, students were very much on their own as they went through the course materials. They were thus more intent on merely learning the material as it was presented to them in the textbooks, without critically evaluating the ideas they encountered using their higher order thinking abilities. The only collaborative work, the online synchronous and/or asynchronous discussion, seemed to be just an "add on" activity. It seemed the "real thing" students were asked to do was the assignments (responses or quizzes) they worked on independently which they sent to the instructor. Both these courses thus retained the traditional model of instruction where students primarily wrote for their teachers and reproduced what they learned in textbooks. It was also clear that just as an exclusively teacher-centered model is not educationally effective in making knowledge meaningful to students, so is the other extreme of learner-centered model where students are expected to work in a very open learning environment with little guidance from the teacher.

Conclusion

The above study showed that diverse multi-modal teaching activities with corresponding learning activities are successful in creating an effective learning environment where students are engaged in the process of learning. The teacher's presence, generated through multi-modal teaching acts, promotes self-motivation and self-direction amongst students as they are guided to actively engage in collaborative learning activities. In establishing quality standards in the online classroom, therefore, the role of the instructor in creating an integrated teaching-learning environment must be emphasized. The electronic medium is unique in that it can be easily transformed into a dynamic electronic space that is capable of sustaining the social presence of both the teacher and the students. The instructor's expert guidance manifested through multi-modal teaching activities is indispensable in creating a shared context of learning where students are engaged in both constructing knowledge and applying it to other contexts. The diverse teaching-learning activities promote a complex mode of multi-level interaction amongst the learners, the

instructor, and the content of the course, which creates a social context for constructing, exchanging and transforming knowledge.

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